



DISSEMINATION STATEMENT A

Approved for public release
Distribution Unlimited

CRAF INCENTIVES

GRADUATE RESEARCH PAPER

Charles A. Post Jr., Major, USAF

AFIT/GMO/LAL/96N-11

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY

19970124 063

Ent-Patterson Air Force Base, Ohio

DTIC QUALITY INSPECTED 3

AFIT/GMO/LAL/96N-11

CRAF INCENTIVES

GRADUATE RESEARCH PAPER

Charles A. Post Jr., Major, USAF

AFIT/GMO/LAL/96N-11

Approved for public release; distribution unlimited

DTIC QUALITY INSPECTED 3

The views expressed in this academic research paper are those of the author and do not reflect the official policy or position of the U.S. Government, the United States Air Force, or the Department of Defense

CRAF INCENTIVES

GRADUATE RESEARCH PAPER

Presented to the Faculty of the Graduate School of

Logistics and Acquisition Management of the

Air Force Institute of Technology

Air University

Air Education and Training Command

In Partial Fulfillment of the

Requirements for the Degree of

Master of Air Mobility

Charles A. Post Jr., B.S., M.B.A.

Major USAF

November 1996

Acknowledgment

I would like to express my deep gratitude to my research advisor, Lieutenant Colonel Terrance L. Pohlen, for his constructive criticism and patience. He was always willing to assist. I will always remember and appreciate his knowledge and courtesy.

I would also like to recognize the outstanding assistance I received from Lieutenant Colonel Wes Routh at AMC/DOF. He was willing to help me gather information. He made time in his busy schedule and offered all the information I needed.

Finally, I would like to thank my wife, Jackie. She gave me time and room to work without complaint. She was a great source of encouragement. Her understanding was the cornerstone in the completion of this project and the ASAM program.

Charles A. Post Jr.

Table of Contents

	Page
Acknowledgment	ii
List of Figures	iv
List of Tables	v
Abstract	vi
I. Introduction	1
II. History of the CRAF	6
CRAF Makeup July 1990	13
III. Discussion of Problems	14
Airline Profits.....	14
Lessons Learned From Desert Storm	18
Insurance issues	23
IV CRAF Incentives	31
GSA City Pairs Program.....	32
Civilian Access to Military Installations	34
Contingency Alert Concept	35
Small Package Program	36
Other Incentives for CRAF.....	37
V. Summary	42
Bibliography.....	46
Vita.....	48

List of Figures

Figure	Page
1. CRAF Total Mission Summary 1990-1991	3
2. Historical CRAF Participation (Passenger Aircraft)	16
3. Historical CRAF Participation (Cargo Aircraft)	16
4. Mobilization Value Calculations	33

List of Tables

Table	Page
1. CRAF Makeup July 1990	13
2. Flights Insured by Title XIII.....	26
3 Current CRAF Participants.....	31

Abstract

During Desert Storm the Civil Reserve Air Fleet (CRAF) was "called up" for the first time in its history. If full CRAF activation occurs, the airline industry would suffer substantial economic losses. The commercial airlines perform a vital service to this country's business community. If this service is reduced it may have a severe impact on the country as a whole. the Department of Defense (DoD) needs to explore different avenues to keep CRAF participants interested in the program. The airlines look at the bottom line now more than ever, since the industry is in a survival of the fittest environment.

If the CRAF is going to cost the airlines money or business, they lose interest very fast. When the major airlines leave the CRAF, DoD may or may not have enough airlift to move all that is required to move in a contingency. Either the government pays the price now to have the lift available or it may not be there when needed. Many issues surfaced during the 1990 activation of the CRAF, some have been solved and the rest are in progress. DoD needs to treat the CRAF program as a business venture with the airlines. The airlines are in business to make a profit, if the program is going to cost them money they will not commit to it. Initiatives will be explored to keep the airlines as participants in the program, to keep the CRAF available when the country needs it.

CRAF INCENTIVES

I. Introduction

Civil airlift is much less costly than military airlift, this fact is the driving force behind the Civil Reserve Air Fleet (CRAF). The program is beneficial to the Air Force because the airlines buy the airplanes and maintain them. The Air Force does not have to maintain a considerably larger airlift fleet. The CRAF has been a cost effective program for the federal government and an important business opportunity for small air carriers. The government provides the opportunity for air carriers to obtain as much government business as they can at all times, including during emergencies, such as the Gulf War.

Activation of the CRAF could have serious implications on airline's large investments in those markets where aircraft are removed to satisfy the government's needs. Thus, activation of the latter phases of CRAF might produce significant economic consequences for the air carriers. If the airlines must contribute large amounts of airplanes they face the possibility of losing their civilian markets to other carriers. Finding the right incentives to offer the airlines is the driving force behind keeping the airlines participating in the program.

Air Mobility Command (AMC) is responsible for managing the CRAF during peacetime and wartime. The civil air office at AMC is charged with developing incentives to keep the airlines interested in the program. This is no easy task, since the airlines are constantly pursuing new ways to make profits and cut costs. They are

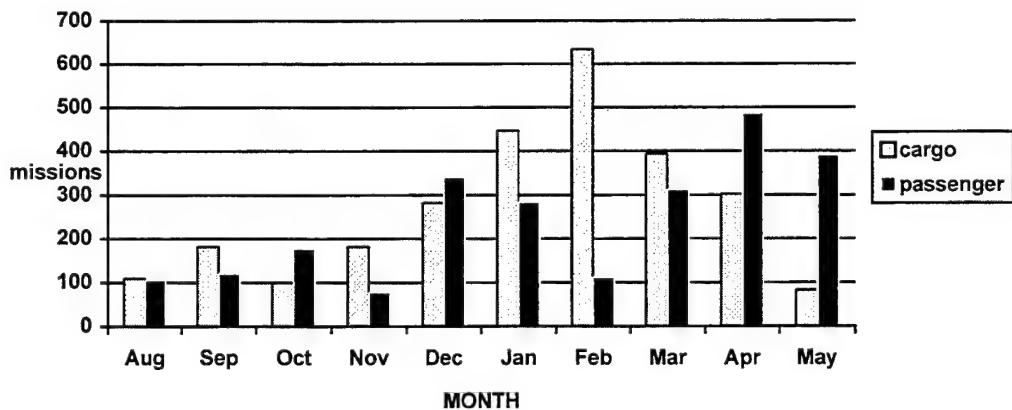
reluctant to make changes, especially if there is additional cost involved, or there is a chance that it will affect overall profits.

In the aftermath of Desert Storm, the first time the CRAF was activated, the airlines did not know whether being a member of the CRAF was a good idea. Many carriers participated in the CRAF program for years, gaining the advantage of a guaranteed share of the Department of Defense's (DoD) peacetime business, never expecting activation. The first activation on August 17, 1990, during Desert Shield, brought many issues to light that had not been previously considered. These issues include business losses during activation, compensation for extraordinary expenses, underutilization of the aircraft, insurance language, and joint venture liability. After Desert Storm, United and American Airlines decided to leave the CRAF program, and AMC lost the lift capacity of 106 aircraft over a two year period. The two carriers have since rejoined CRAF.

The CRAF offers the DoD a relatively inexpensive way to have airlift capability available without paying for it. If the CRAF program did not exist, the Pentagon would be required to spend billions of dollars for organic airlift. "A Rand study suggests that replacing the CRAF capability with military aircraft would have cost DoD about \$1 billion to \$3 billion annually over the past 30 years" (GAO, 1996: 2). The USAF strategic airlift fleet is comprised of C-5, C-17, C141 and KC-10 airframes. These airframes cost more than commercial airliners due to the requirements the military puts on the aircraft manufacturers. The aircraft are airdrop capable and have redundant

systems in case the primary one is disabled while flying in a hostile environment. All of these requirements raise the price of the airplanes. If the Air Force lost this capability, replacing it with purely military assets "Would bankrupt the Treasury," warned General Robert L. Rutherford, former Commander in Chief of US Transportation Command and Commander of AMC, "I must keep CRAF viable," he said." (Grier, 1995:50)

Figure 1 shows how many total CRAF missions were flown in support of Desert Shield, Desert Storm and Desert Sortie. It is easy to see how vital this program is to the national airlift system.



CRAF TOTAL MISSION SUMMARY

1990-1991

Figure 1.

(Priddy, 1993: M-1)

The CRAF program requires the airlines to commit passenger and cargo aircraft to be available for military call-up during major contingencies. In return, these commercial

carriers receive a guaranteed slice of the day-to-day U.S. government transportation business. The amount of business received is in proportion to the number of aircraft offered for CRAF commitment. This is no small incentive in a low-margin industry. The airlines look for revenue-generating sources to increase their margins at every opportunity. "The long-term average profit margin for the industry has been less than one percent" (Gebman, 1994: 48). The Pentagon contributed \$650 million to the airlines under CRAF contracts during fiscal year 1994 and over \$500 million in fiscal year 1995 (Grier, 1995:51). In 1994 an unusually high level of overseas deployments and airlifts as well as the temporary grounding of the C-141 fleet resulted in the dollar figures for that year being higher than 1995.

CRAF provides a sizable part of the nation's strategic mobility, so much so that Air Force officials say they are totally committed to fixing the problems in the program revealed in the aftermath of Operation Desert Storm (Grier, 1995:50). Continuing to work on incentives for the airlines to increase the level of their CRAF participation is essential for the future. It means bolstering CRAF insurance protection and making sure civilian aircrews receive the same chemical weapons protection gear as their military counterparts (Grier, 1995:50).

Commercial aircraft promised under CRAF comprise more than ninety percent of the Air Force's long-range passenger-carrying capability and thirty percent of its cargo-hauling capability. As of January 1996 the CRAF carriers committed 428 long range international aircraft to the program. All major carriers are now represented in the

CRAF. The civil air office at Scott AFB, IL wants to spread the risk and impact of CRAF across all the carriers. The airlines enjoyed a number of years of government business by being members of the CRAF, and never thought it would be activated. It was a safe investment for the airlines since the 1950s.

In the wake of Desert Storm and a nine month activation, many CRAF carriers were having second thoughts regarding the benefits of CRAF membership. Large carriers significantly reduced their CRAF commitment in search of other methods of building business. New incentives need to be offered to the airlines to keep them committed to the CRAF program.

The airlines must maintain or increase profitability to remain economically viable. They cannot support the DoD if the CRAF does not yield a reasonable rate of return. In today's competitive industry the carriers are looking for ways to substantially cut costs and fill their aircraft with passengers and cargo. AMC has an enormous challenge on its hands trying to keep as many participants in the program to meet the minimum number of aircraft required. Business incentives are the key to the success of the program. Incentives include: The GSA City Pairs Program, Civilian Access to Military Installations, Contingency Alert Concept and the Small Package Program.

II. History of the CRAF

In 1950, the Military Air Transport Service (MATS) was the equivalent of today's AMC. Efforts then were concentrated on training crews on the main aircraft, the C-54. In June of that year North Korea invaded South Korea. "The Pacific Division of MATS was maintaining a peacetime posture, it only had 60 C-54 aircraft" (Priddy, 1993:12).

The civil airlines came to the rescue by flying more than 60 aircraft under contract, flying an average of 10 hours per day per aircraft. On June 30, 1950, Transocean Airlines was the first commercial airline to fly Korean airlift missions for MATS. During the war Transocean used seven DC-4's (the commercial version of the C-54) to handle nearly 14 percent of the entire Korean strategic airlift. "In the Korean conflict, civil carriers flew more than 10,700 missions representing 40 percent of the missions on the U.S. to Japan shuttle. They airlifted 49,000 tons of cargo and passengers (67% of all passengers, 56 percent of all cargo and 70% of all mail)" (Priddy, 1993:13).

While the battles in Korea continued, legislators in the U.S. pushed for a more formal national aviation policy and a more formal relationship between the military and the civilian airline industry in preparation for future mobilizations. The government believed it needed to be guaranteed access to the civil fleet in times of crises. "The Congress passed the Defense Production Act, giving the president broad authorities dealing with the allocation of materials and facilities in such a manner, upon such conditions and to such extent as he shall deem necessary or appropriate to promote the

national defense" (Priddy, 1993: 13). This gave the president authority to use civil airplanes to promote national defense.

At the end of 1950 the National Security Council appointed a civilian committee to recommend methods of ensuring adequate airlift capabilities in wartime. The committee developed a program known as the Douglas Report. This report recommended the civil airlines be divided into "First Line Reserve" and a "Second Line Reserve." The aircraft were required to be four-engine, long-range, and over-water-capable aircraft. The carriers would be required to respond with all crews and equipment on board within 48 hours. The First Line Reserve could expect to be involved as long as it took to end the military crisis. The Second Line Reserve could expect a two week notification of call up. These aircraft were available only for temporary emergencies of up to 90 days.

"Based on the Douglas Report, President Truman issued Executive Order 10219, on March 2, 1951" (Priddy, 1993: 15). The Executive Order directed the Department of Commerce to:

assemble and analyze data on the requirements of civil air transportation and of the Department of Defense for aircraft of the types used by the civil carriers, and . . . to formulate such plans and programs, and initiate such actions as may be desirable to meet the requirements for civil air transportation and for the types of aircraft used by civil air carriers, including plans and programs for the transfer or assignment of aircraft from civil air carriers to the Department of Defense, when required to meet the needs of the armed forces as approved by the Director of Defense Mobilization, and . . . to allocate aircraft of the type used by civil air carriers as required to meet the needs of the armed forces and to maintain essential civil routes and services. (Priddy, 1993:15)

Responsibility for planning the program was turned over to MATS. Most carriers responded to the MATS request to provide representatives to an ad hoc staff group. The name Civil Reserve Air Fleet was adopted for the new government-industry program. “The ad hoc group decided that much fewer aircraft were required than what the Douglas Committee recommended, a total of 271 four engine aircraft would be used” (Priddy, 1993:16). The Memorandum of Understanding was signed on December 15, 1951 and CRAF was born.

Between the years of 1952 and 1962 the airlines and MATS were at odds with each other over scheduled airlift missions operated by MATS. The carriers believed the government should use unutilized capacity of the civil carriers. In other words, the carriers were complaining about MATS taking revenue away from them by operating its own aircraft over identical routes. Most of the international passenger and cargo transportation was provided on a scheduled airlift basis by MATS. Domestic traffic, known as LOGAIR was contracted by the Air Force’s Materiel Command. “In 1955 the Hoover commission issued a report that specifically recommended that MATS peacetime operations be restricted and carefully evaluated as to the necessity of military air transportation and, only after commercial carriers have been utilized to the maximum practical extent, should transportation on MATS aircraft be permitted” (Priddy, 1993:18). So the airlines had won the argument and the government had to use existing lift available by the carriers before using MATS.

In 1958 two significant CRAF-related actions were taken. First, the Federal Aviation Administration (FAA) was formed by the FAA Act. This act also required any carrier wishing to conduct business with the Department of Defense to offer aircraft to CRAF. Second, a CRAF operations manual was published. The manual was a cooperative effort on the part of the carriers and MATS. The operations manual outlined a system of aircraft modifications to be paid for by the military. Because most of the nation's carriers did not operate internationally, they needed additional equipment, such as improved communications and navigation equipment, and provisions for over-water flight. Activation authority of the CRAF was also given to the Secretary of Defense.

In 1962 policy was adopted to give preferential treatment for contracts to carriers whose facilities and equipment were most advantageous to the emergency needs of the Department of Defense. "MATS designed a formula for assigning "mobilization value" to aircraft based upon their performance features and contribution to the mobilization base" (Priddy, 1993:26). Each aircraft's mobilization value was based on the aircraft's payload, volume, block speed and range. Once each aircraft's mobilization value was determined, each carrier's total mobilization value was computed. Carriers then were awarded contracts based on their total mobilization value, and carriers with the greater share of mobilization value received the most business opportunities. Small adjustments have been made to the mobilization value based upon changing DoD strategies for particular airlift capability, the same basic idea remains in place today to determine business entitlement.

The Kennedy administration implemented the different stages of CRAF as they are known today. When the executive order was issued the incremental activation followed four steps:

- a. Peacetime operations under contract to the Executive Director, Single Manager Operating Agency for Airlift Services (Commander MATS).
- b. Stage I Airlift Emergency, when required to perform airlift services for DoD operations in support of, but not confined to, counterinsurgency activities and localized emergencies. The Secretary of Defense had the authority to direct this stage.
- c. Airlift Emergency, when required to perform airlift services for DoD operations in support of, but not confined to, limited wars. The President of the United States had the authority to direct this stage.
- d. Stage III Airlift Emergency (activation of CRAF), when required to perform airlift services for DoD operations during major military engagements involving U.S. forces (limited or general war). CRAF could be activated in a declared national emergency by the Secretary of Defense, or in accordance with the conditions of the contracts (Priddy, 1993:27-28).

Under this plan, the call up of the first two stages was not considered CRAF activation. In fact, Stage I was voluntary and DoD had no unilateral tasking authority at that stage. “This course of action by President Kennedy and subsequent changes to CRAF were well received by the airline industry” (Priddy, 1993:28).

“Following these actions the airlines received significantly more of the military traffic. The Air Force spent \$54 million in 1961, \$77 million in 1962, and \$103 million in 1963 just for channel passenger traffic and by the year 1965 the commercial share of channel traffic was 85%” (Priddy, 1993:29). The modern CRAF as we know it today grew from the framework that was in place in the early 1960s with few minor changes.

On January 1, 1966 MATS became the Military Airlift Command (MAC) and no major changes to the program were implemented until 1974. The CRAF Enhancement Program (CRAF-E) was formulated by MAC in 1974 with the objective of obtaining additional oversized cargo airlift capability for DoD. “MAC issued a contract Request for Proposal which called for retrofitting existing wide-body passenger aircraft with a cargo door and reinforced floor” (Priddy, 1993:32). The concept behind this was that the government would assume the cost of the conversions and cover any operating costs associated with the added weight to the aircraft. The airlines responded with offers for 87 aircraft.

Funding and permanent legislation for the program was not realized until 1983. “The legislation led to the modification of 19 Pan Am B-747 passenger aircraft at a cost of \$26.5 million per conversion” (Priddy, 1993: 32). This conversion also included a 2-year commitment to the CRAF with operating and fuel adjustment costs paid up front to Pan AM . The airline was obligated to convert the aircraft, upon DoD demand, only if CRAF Stage II was activated. In all DoD contracted to modify 23 new and existing

aircraft at a cost of nearly \$600 million. "These aircraft added nearly 3.5 million ton miles per day in cargo capability, or the equivalent of 64 C-141s" (Priddy, 1993:33).

In 1990 the CRAF was a voluntary, contractual partnership between the DoD and most of the civil air carriers in the U.S. The relationship was based upon the policies and changes that had been hammered out in national debate for more than 40 years. "When Iraq invaded Kuwait it represented more than 50 percent of the nation's airlift capability in a full-scale mobilization, fully 90 percent of the passenger lift" (Priddy, 1993:34).

By 1990 the definition of the stages of CRAF had changed and were:

- a. Stage I, entitled committed expansion, activated by a call from the Commander-in-Chief, Military Airlift Command, and was comprised exclusively of long-range aircraft. There were 21 cargo and 17 passenger aircraft from 16 different airlines in Stage I at the beginning of Desert Shield.
- b. Stage II, called Defense Airlift Emergency, included all segments of CRAF except the Aeromedical Evacuation Segment. Activation was the prerogative of the Secretary of Defense. There were 185 aircraft committed to Stage II on July 1, 1990
- c. Stage III, National Emergency, included the total capability of CRAF. The Secretary of Defense could activate CRAF Stage III in time of war or during a defense-oriented national emergency declared by the President of the United States or Congress (Priddy, 1993:34).

Aircraft are assigned to one of five mission areas:

1. Long-range international--these aircraft transport passengers and cargo from one theater to another or across oceans.
2. Short-range international--support short islands.
3. Narrow-bodied cargo--in the domestic segment support domestic air logistical pipeline operations.
4. Alaskan segment--the aircraft must be able to weather severe northern flying conditions.
5. Medevac--uses B767 aircraft to airlift casualties on an intertheater basis, between the theater and Europe or the United States.

CRAF Makeup July 1990

Saddam Hussein's invasion of Kuwait in 1990 caused the first activation of the CRAF in its 40 year history, on August 18, 1990. Table 1 lists aircraft provided by the civilian carriers in the CRAF program in July 1990.

CRAF Makeup July 1990

Table 1

(Chenoweth, 1993, 8)

Mission Segment	Number of Aircraft		
	Stage I	Stage II	Stage III
Passenger			
Long-range International	17	77	252
Short-range International	0	21	28
Cargo			
Long-range International	21	39	141
Short-range International	0	2	6
Aeromedical	0	0	31
Domestic cargo	0	44	44
Alaskan cargo	0	4	4
Total cumulative aircraft	38	187	506

Upon activation, 17 passenger aircraft and 21 cargo aircraft were called up. Prior to the activation, the airlines were volunteering to fly missions and MAC had 18 aircraft already employed by the time of the call up.

In late November or early December, MAC polled the CRAF airlines for their reaction to a possible Stage II activation. "The carriers wanted a delay in activating more CRAF aircraft, citing an anticipated negative impact on their Christmas season business if MAC called up more of their most capable aircraft" (Chenoweth, 1993:13).

On January 17, 1991, minutes after the start of the air campaign, MAC sent the airlines another activation message. The message announced the activation of Stage II, and told the airlines to ready long-range international cargo aircraft only. "The call up of Stage II brought the total number of aircraft technically activated in both stages to 77 passenger and 39 cargo aircraft, although only 17 passenger aircraft and 39 cargo aircraft had to report for duty" (Chenoweth, 1993:13). In addition to the activated aircraft many airlines volunteered aircraft to boost MAC's capability. The Stage II activated aircraft were used to redeploy troops back to their home bases and On May 17, 1991 MAC deactivated CRAF Stage II, followed a week later with a Stage I deactivation on May 24. Prior to the deactivation the Secretary of the Air Force named CRAF "Rookie of the year" for its superb performance during its first activation.

III. Discussion of Problems

Airline Profits

Even though the government compensated the airlines a total of \$1.35 billion for the Desert Storm airlift the carriers began to realize that CRAF no longer seemed a risk-free way to lock in Pentagon contracts. In 1991 participation in the program began to fall off. Clues about how air carriers viewed the profitability of CRAF are evident by inconsistent commitment by civil aviation, incomplete commitment by individual air carriers and variations in air carrier commitments over time, as illustrated in figures 2 and 3.

The problem is, what incentives are required to keep enough airlines participating in the CRAF to meet contingency airlift requirements. The civil air office at Headquarters AMC is charged with this task, it is a balancing act between the Air Force and the profit driven airlines.

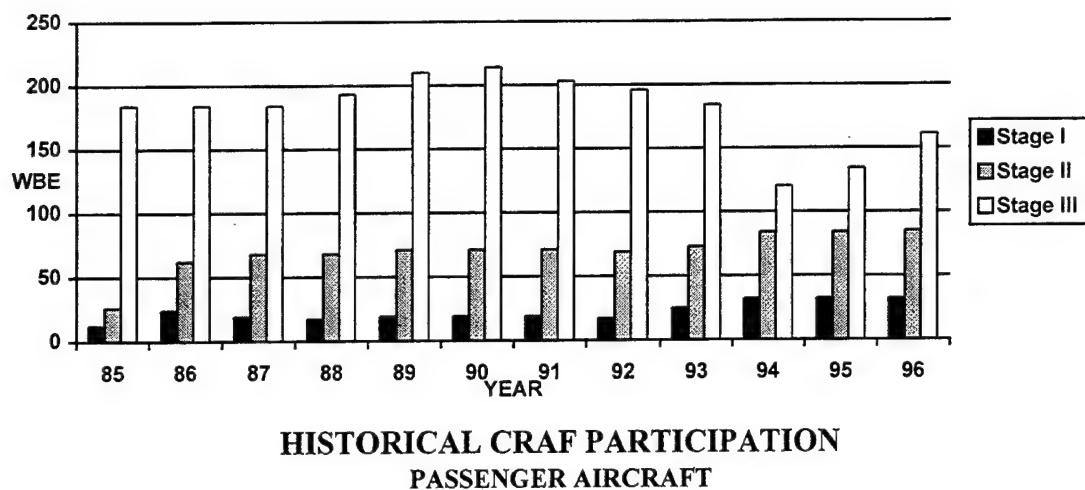


Figure 2.

(Porter, 1996: 14)

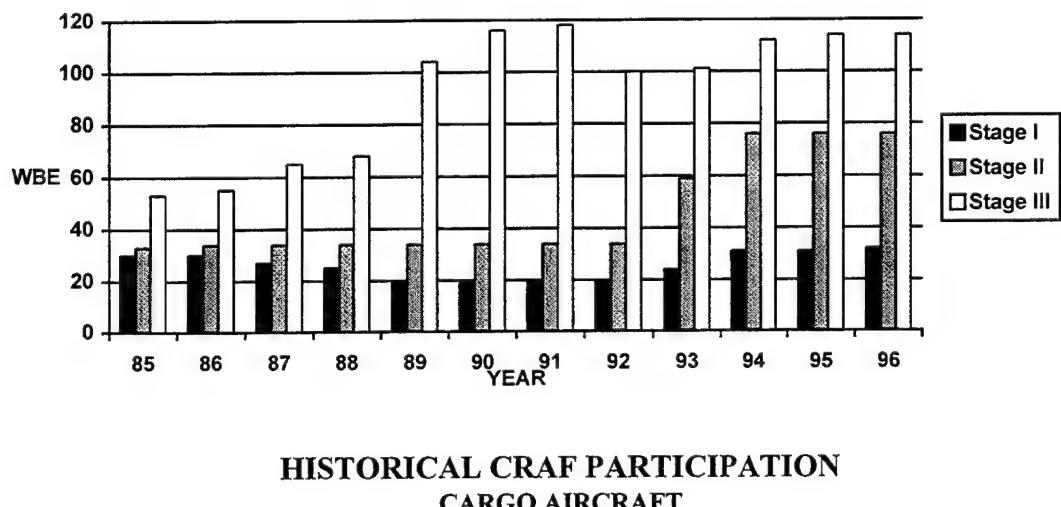


Figure 3.

(Porter, 1996: 13)

WBE-wide body equivalent (the standard that aircraft loads are measured against)

“If the CRAF program was profitable for all carriers, we would expect every carrier to commit all eligible aircraft to the program until either airlift needs were satisfied or all eligible aircraft had been committed” (Gebman, 1994: 48). However, this did not happen. “Since the Vietnam War, the annual amount of business provided to the CRAF carriers has ranged from a low of \$368 million to a high of \$650 million” (Gebman, 1994: 48).

“Over the 30 year period of 1961-1990, we estimate that \$19 billion of CRAF related business was generated by the airlines” (Gebman, 1994:49). If the true profit margin for this business were one percent of revenue, the air carriers realized a profit of \$190 million” (Gebman, 1994:49). “At a five percent profit margin, the profit would have been \$950 million” (Gebman, 1994:49).

The Rand study came to the conclusion that a realistic profit margin was well below five percent. This assessment has a potential pitfall. Smaller carriers have lower costs due to the use of older equipment and lower salaries. Their profit on the government’s business could have exceeded the five percent margin. “This fact can be backed up by the fact that the small cargo carriers and small charter carriers volunteered far more aircraft to support the peak month of airlift activity (January 1991) than did the large cargo and passenger carriers” (Gebman, 1994: 51). For example, small cargo carriers were required to give six aircraft to the CRAF during the Stage II activation. The reality was they actually volunteered an additional 20 aircraft. At the same time the large cargo carriers were required to give 18 aircraft to the CRAF Stage II. They only offered

an additional two aircraft. There were two notable exceptions to this. At the time of the Gulf War, both Pan Am and TWA had significant excess capacity, were experiencing a decline in demand due to the impact of the Gulf War on their markets, and were either in or near bankruptcy. So both of these carriers offered additional aircraft.

The financial strain on carriers during activation is also a major concern. The following quote from a RAND study identifies this concern.

Until the Gulf War, few air carriers had expressed serious concerns about the business consequences that might flow from an activation of CRAF. Because consequences are now known, there is no doubt but that the relationship between the Air Force and the air carriers has changed in a fundamental way. Because of the nonuniform commitments to CRAF by competing carriers, some major carriers are rethinking market exposure issues that arise during activation of CRAF. Because a deeply committed air carrier has a greater proportion of its market share at risk than a carrier with only a token commitment, the deeply committed carrier risks losing a greater portion of its business during an activation. Market shares are hotly contested, and the government lies in deep commitments by a few air carriers that could not realistically deliver on those commitments without incurring substantial damage to their long-term financial positions.
(Gebman, 1994:55)

Lessons Learned From Desert Storm

“During the Desert Storm activation, CRAF aircraft transported nearly 700,000 passengers and over 120,000 tons of cargo, this translates to 64 percent of the total passengers and 25% of the air cargo needed for the operation” (GAO, 1992: 4-5).

Statistics indicate that the carriers made major contributions to the airlift. Both DoD officials and those in the air carrier industry regarded the CRAF activation as a success. The Desert Storm activation highlighted problems facing the airlines during activation.

As expected, initial activation of the program did not happen smoothly in all areas. Many airlines believed that DoD's compensation rates did not cover all costs incurred. The airlines were paid at the peacetime rate during the activation. "However, all carriers incurred additional expenses for such things as hazardous duty pay, routing delays, and establishing enroute bases in Europe were higher during the activation than during peacetime" (GAO, 1992: 8-9).

Many carriers complained that once activated the Air Force did not fully utilize their aircraft. When the aircraft are not being used, they are not generating revenue for the carriers. "The cargo carriers cited substantial delays onloading and unloading cargo, with ground times between flights often in the 5 to 7 hour range, which is also a compensation issue since the aircraft earns no revenue sitting idle on the ground" (GAO, 1992: 9). Two to three hours is considered a normal ground time in the air carrier industry.

A solution to this problem is to let the airlines maximize the onload of troops and cargo at airline hubs. The airlines believe that the use of their own hubs for loading would be less disruptive. Some of these hubs are reasonably close to the more congested bases during a mobilization. For example McGuire AFB is not far from either New York or Philadelphia. Any of the airports in the New York City area or Philadelphia could be used to alleviate the heavy flow through McGuire AFB or Dover AFB.

The Desert Storm experience also highlighted the importance of good command and control for all aircraft, including commercial transports. This was evident in the

early days of the deployment, when on more than one occasion a civilian carrier would land at an onload site or destination with little or no advance notice. Unanticipated arrivals raised problems for everyone: MAC, the airlines, and the users of the airlift. Without prior notice of when or what aircraft would arrive, cargo and passengers were not always ready. “The commander at Fort Stewart, home of the 24th Infantry Division, reportedly dealt with the passenger flight uncertainty by processing large numbers of troops, and housing them in shelters adjacent to the airfield, ready to board at a moment’s notice” (Chenoweth, 1993: 45).

The command and control system used during the operation, the Global Decision Support System (GDSS), did not incorporate CRAF flight information provided by airline systems automatically. The airlines provided mission reports to the military and personnel had to enter CRAF flight information manually. If data were not entered soon enough, information gaps resulted. “MAC gave more attention to this problem as its importance became more apparent” (Chenoweth, 1993: 44). As the war approached commercial crews wanted to fly into the theater during daylight hours and preferably fly out again before nightfall. This preference intensified when Iraqi Scud missile attacks commenced after the war began. The attacks occurred mostly after nightfall. Coordinating theater arrival times required close flight monitoring.

“CRAF officials developed a standardized reporting format that all airlines agreed to and have fully implemented an automatic updating capability” (Chenoweth, 1993: 45). This is a major step to fixing a problem not identified until initial activation. It means

that better coordination is possible in the future among AMC, the airlift users, the airlines and airfield personnel.

One repeated comment from the airlines during Desert Storm was the lack of response with the radio frequencies that crews were given to use for command and control. "MAC's response to this was that enroute communications for flights crossing the Mediterranean were often assigned to Navy ships" (Chenoweth, 1993: 46). To avoid giving away their position, normally operators on these vessels would not respond to a crew, except in the case of an emergency. To remedy this problem in the future, the Air Force has acquired secure radios to be provided to the carriers upon activation. This will ensure they have a means of secure communication during flight.

Another major concern for airline crews was the lack of chemical defense equipment for the civilian aircrews during the early part of the operation. "Crews felt it was unreasonable for the military to expect them to fly in the theater without this equipment while troops onboard the same aircraft had theirs" (Chenoweth, 1993: 49). Initially, crews were met as soon as they landed by ground personnel with protective suits.

The one drawback to this policy was the chance of an alarm going off at an airfield while crews were waiting for their gear. Of course it happened on at least one occasion. Immediately after they landed, the alarm signaled a possible attack. All personnel ran for shelter using the closest vehicle at hand. Someone sped off in the truck containing protection gear intended for the arriving crew. Fortunately the gear was not

needed, but incidents like this severely affected morale. Eventually MAC issued chemical equipment to crews outside the theater. However, many airline officials believe the crews did not receive adequate training on the equipment.

AMC worked to overcome the chemical gear shortage. There are now 1300 sets of chemical protective equipment located at Dover AFB for civil aircrews. "A training video and pamphlet have been developed but no commercial aircrew hands-on training will be accomplished until activation of the CRAF" (Routh, 1994: 3).

The financial strain on carriers during activation is also a major concern. The following quote from a RAND study identifies this concern.

Until the Gulf War, few air carriers had expressed serious concerns about the business consequences that might flow from an activation of CRAF. Because consequences are now known, there is no doubt but that the relationship between the Air Force and the air carriers has changed in a fundamental way. Because of the nonuniform commitments to CRAF by competing carriers, some major carriers are rethinking market exposure issues that arise during activation of CRAF. Because a deeply committed air carrier has a greater proportion of its market share at risk than a carrier with only a token commitment, the deeply committed carrier risks losing a greater portion of its business during an activation. Market shares are hotly contested, and the government lies in deep commitments by a few air carriers that could not realistically deliver on those commitments without incurring substantial damage to their long-term financial positions.
(Gebman, 1994:55)

Another hurdle to overcome for the Air Force is the fact that the U.S. Air carriers are buying smaller aircraft. The U.S. airlines are moving away from large transports like the B-747 toward mid-size transports like the B-767 and MD-11. The composition of the air carrier fleet is moving toward the smaller aircraft because the smaller aircraft are

better suited for their hub and spoke system. "The most "militarily useful" civil aircraft is the B747-400 enhanced freighter." (OSD, 1996) However, U.S. airlines are not buying many of them. "The only U.S. carriers taking delivery of the 747-400 are United and Northwest" (Gebman, 1994: 56). In contrast, many U.S. carriers took delivery of the 747-100 in the 1970's. The outcome is the very large aircraft that are most desirable to CRAF may become harder to find.

The number of 747s operated by U.S. air carriers reached a peak in 1990 at 195 aircraft. By 1993, the number had fallen to 177. Further decline is expected, because only four have been ordered by U.S. carriers since 1990. Meanwhile, foreign air carriers operated 581 747s in 1990 and 737 in 1993. Moreover, they have ordered 62 since 1990. All scheduled deliveries through the year 2000 for the 747-400F are for foreign carriers. (Gebman, 1994: 58)

Because of mixed support from the carriers, in the wake of Desert Storm, the Air Force needed to come up with incentives to keep the airlines interested in committing their large aircraft to CRAF. AMC has been working hard to bring old carriers back into the program as well as maintain commitments from current CRAF participants.

Insurance Issues

One of the first problems to arise when the CRAF was activated was the question of insurance. Company representatives, Department of Transportation (DoT) personnel, and CRAF officials worked through start-up insurance problems. The government's insurance policy is critical to the success of the program. Replacement costs for wide body commercial aircraft often exceed 100 million dollars. It is no surprise that the airlines do not want to fly underinsured. During the operation and for some legs of the

missions, gaps in government insurance occurred regularly, although not recognized by the airlines until after the fact (Chenoweth, 1993:20).

Several airline representatives blamed problems with government-sponsored insurance as the reason why they did not volunteer more lift before Stage I activation. At the start of Desert Shield, commercial insurance rates made flying to the Gulf region increasingly cost-prohibitive. When this situation arises the government has the authority to underwrite missions performed in the national interest. War risk insurance under Title XIII of the Federal Aviation Act of 1958 within the Department of Transportation covers contract air operations conducted in the national interest. "Title XIII insurance can be issued as a nonpremium policy for certain government-chartered aviation activities, or a premium policy for strictly commercial activities" (Priddy, 1993: 97).

One week before CRAF was activated, the Department of Transportation (DoT) activated the Title XIII insurance program. Title XIII nonpremium insurance applied during Desert Shield.

As a condition of their airlift services contract with DoD, CRAF participants must maintain nonpremium insurance coverage. An airline pays the FAA \$200 for every transport they commit to the CRAF—an amount that makes the plane eligible for government provided nonpremium insurance for as long as the airline owns or leases it. (Chenoweth, 1993:21)

Liability gaps existed in the Title XIII insurance. The insurance did not cover domestic point-to-point flights. Many times carriers stopped at least once in the U.S. after picking up initial loads either to refuel or pick up additional cargo and troops. The

insurance related only to aircraft operations and covered ramp to ramp activities. “It did not cover events conducted on the ground, such as refueling, catering service, and enroute maintenance” (Chenoweth, 1993:23). The airlines operated in and out of Dhahran and Riyadh, Saudi Arabia, which were within striking distance of the Iraqi surface to surface missiles and where ground accidents and damage could occur. These gaps in coverage caused the airlines serious concern. At the outset DoD and DoT were authorizing insurance coverage on a tail number by tail number basis and even on mission number by mission number basis. This problem was fixed within two weeks; however, the procedure in the beginning was time consuming and labor intensive.

“The activation of the Title XIII nonpremium program requires three conditions: the President must indicate that air operations are in the national interest, the operations have to be international in nature, and the FAA must determine that commercial insurance is not available on reasonable terms and conditions” (Chenoweth, 1993:23). The FAA determines whether a flight requires DoT backed insurance by calling insurance companies, getting price quotes, calculating whether the flight would be profitable under the quoted rates, and approving the insurance if the answer was no. Table 2 shows the air carriers that were issued premium Title XIII insurance policies during Operations Desert Shield and Desert Storm.

TABLE 2. (Priddy, 1993: L-1)
Flights Insured by Title XIII

CARRIER	NUMBER OF FLIGHTS INSURED
American Trans Air	1
Evergreen	3
Pan American	1
Southern Air Transport	9
Tower Air	15
Trans World Airlines	7
TOTAL	36

The Department of Transportation for the first two weeks asked the airlines to provide them with up to three cost quotes from insurance carriers for each mission and aircraft (by tail number). If for any reason the airline needed to swap aircraft, it had to repeat the entire procedure. DoT fixed the problem by providing approval for weeks of coverage, good for any CRAF mission and for certain types of aircraft, rather than on the individual planes themselves.

Another insurance problem was Title XIII insurance applies only to aircraft returning empty to their commercial operations or carrying military loads on the return flight. Airlines cited passed up business opportunities because the government did not insure any commercial backhaul on the return portion of the trip. Any company conducting commercial operations out of the Gulf region would pay hefty insurance rates, if they were available at all.

The DoD Indemnification Program was brought on line as the carriers learned more about what was and was not covered under Title XIII. "MAC immediately

presented the problem to the Secretary of the Air Force, Donald B. Rice, and he granted indemnification for CRAF missions conducted in support of Desert Shield” (Chenoweth, 1993: 24). This was a smart move on MAC’s part. When CRAF was activated commercial insurers immediately canceled their policies with many carriers. Others gave the airlines a short notification period of about one week before suspending coverage.

According to the terms of indemnification, DoD’s coverage applied from the start of a mission until the aircraft returned to regular commercial operations or DoD missions other than those supporting the operation. DoD required that the airlines maintain any commercial insurance not yet canceled or cost-prohibitive. AMC reimbursed carriers for extra insurance costs they incurred, up to \$300,000 per trip. Two reasons account for this last requirement. “First the government agreed to match the terms of the carrier’s established policies of insurance and second, airlines successfully collected on some claims made to their commercial insurers for damages incurred during these missions” (Chenoweth, 1993:22).

The DoD indemnification was not without problems. “The FAA has only \$59 million in its insurance fund to cover claims potentially exceeding several times that amount” (Porter, 1996:33). The legal basis for international air travel is governed by the Warsaw Convention Treaty. According to the treaty the airlines must inform passengers of the liability limits before the flight begins, currently \$75,000 per passenger, and to present the option of purchasing additional coverage. If the carrier fails to implement this procedure, it no longer enjoys liability protection

During peacetime operations of CRAF missions, AMC provides the airlines with boarding passes or tickets to give to their military passengers along with commercial insurance packets. During Desert Shield, and especially at the non-MAC loading sites, tickets and forms sometimes ran out or were not available to passengers. Some airlines delayed flights until the optional insurance packets arrived; others reportedly flew anyway. Fortunately no accidents occurred.

Many commercial policies contain a war risk clause that suspends the insurance of the airline crew member under CRAF activation. Others require higher premiums be paid. Many pilots earning a six figure salary have sizable life insurance policies. "In the event of an accident during CRAF activation, the amount guaranteed under the Warsaw Convention (\$75,000) also applies to the crews" (Chenoweth, 1993:25). Crew members did not want to fly underinsured. In fact, some airlines reported difficulty in getting crews to fly during the war because of this problem. Several companies resorted to paying extra premiums for their employees. If any commercial crews had been harmed during the Gulf operation, CRAF participation could have been severely affected.

The idea of having two types of insurance to deal with presents problems in itself. "The airlines said they prefer to work with a single policy" (Chenoweth, 1993: 25). The FAA and AMC plan to continue the two programs but will make changes. "AMC is pushing for indemnification procedures to kick in automatically at the loss of commercial insurance in the case of CRAF activation" (Chenoweth, 1993: 25). It also makes sense for the government to include volunteered assets under its insurance.

Since the end of Desert Storm large strides have been made to fix some of the insurance problems. It is in the government's best interest to solve insurance issues before the next time CRAF is activated. The fewer details that need to be worked out at the last minute the faster missions can start flying.

The five year reauthorization of Title XIII insurance, occurring in October 1992 fixed some, but not all of these problems. For instance, the insurance now covers domestic segments of a military mission. Where gaps remain, new DoD indemnification policies will address most of the significant problems but not all that the airlines would like to see resolved (Chenoweth, 1993:23). This reauthorization did not change the back haul policy. The government will continue to avoid covering commercial flights returning from a military mission. Given the enormous liability implied by a more liberal policy, this decision probably will remain.

The airlines pushed to resolve the problem of not having the insurance packets to issue to passengers. AMC agrees with the airlines and wants DoD to include it in indemnification protection for carriers if they cannot issue tickets or insurance options before takeoff through no fault of their own.

The FAA fund now has \$60 million in it. To cover any shortfall which may arise due to an accident. The Deputy Secretary of Defense has approved use of Defense Business Operating Fund (DBOF-T) to cover claims which might exceed the funds available. This is a short term fix. The DoD funds will be available within thirty days of a claim. "Prior to this, legislative appropriation would have been necessary requiring

several months before pay out, a condition unacceptable to the air carriers" (Porter, 1996:33). In the long term AMC is seeking legislative approval for DoD to use any unobligated funds to cover claims exceeding FAA funds.

Effort continues between AMC and the FAA to address remaining issues. "To assist in this effort, the Military Airlift Committee of the National Defense Transportation Association (NDTA) has also established a subgroup which will make proposals" (Porter, 1996: 33).

IV. CRAF Incentives

After the budget ax had fallen and the military began decreasing its personnel numbers, the airlines believed that there would not be as much contract business with the government in the future. The civil air office began designing new ways to interest carriers in the program. The following presents incentives in place or in the process of being developed in order to keep the program healthy.

Airline	Current CRAF Participants		
	Stage I	Stage 2	Stage 3
American	1	15	39
Delta	1	7	14
North American			1
Sun Country	1	2	4
Trans World (TWA)	1	5	10
United	1	16	39
American Trans Air	13	13	26
Airborne Express		1	1
Atlas Air	1	1	2
Buffalo Airways	1	2	3
DHL		1	1
UPS	1	3	5
Zantop Int'l	1	1	2
Air Transport Int'l	3	8	12
Federal Express	7	20	30
Southern Air Transport	2	5	8
Carnival Airlines	1	2	5
Tower Air	13	14	15
Continental	1	10	36
Northwest/Rich Int'l	4	27	61
Rich Int'l	9	9	11
World	8	10	13
Burlington	4	19	31
Polar Air Cargo	3	8	12
Emery Worldwide	7	22	34
Evergreen Int'l	4	10	13
	88	321	428

Government Services Administration (GSA) City Pairs Program

To keep the airlines interested in the CRAF after Desert Storm, MAC investigated the possibility of pooling all government air service requirements together and awarding the business on the basis of CRAF entitlements only. The GSA city pairs program was born with this in mind. “Before this program was in place non-DoD government agencies secured their air service requirements directly with the airlines on a cost-competitive basis” (Chenoweth, 1993: 62). This is an enormous amount of money that the government pays to the airlines for peacetime business. “During fiscal year 1996 \$1.938 billion was available to CRAF carriers for peacetime business” (Spehar, 1996). The driving force behind this program is that peacetime airlift business is awarded as the primary incentive to participate in CRAF.

The airlines compete for business dependent on their participation in CRAF. Each aircraft offered to CRAF earns a mobilization value. The amount of business an airline is given during peacetime is based on the mobilization value earned. “Once an airline is a CRAF member, it must commit 30 percent of its passenger fleet or 15 percent of its cargo fleet to the program” (GAO, 1996: 4). An airline that is not a CRAF member is not entitled to any peacetime government business. This probably explains why American and United rejoined the CRAF after a short absence.

Carrier compensation for being a CRAF member is based on a standard rate which is negotiated with the carriers each year. This rate provides a reasonable profit for the average cost carriers, it is the same in peacetime or war. AMC believes this avoids

negotiating a rate upon mobilization and keeps the compensation rate fair for everyone.

“A concept of mobilization value was developed as a means to allow for comparison of various types and models of aircraft offered to the program” (Porter, 1996: 20).

There are currently aircraft in the Long Range International section ranging from B707 to B747-400. Computation of a mobilization value allows AMC to determine what a carrier’s fair share of awarded business should be, based on its contribution to AMC’s airlift capability. The civil air office is responsible for computing this mobilization value. Once completed, information is passed on to the contracting office for negotiations in award of peacetime business. Figure 4 shows how a mobilization value is computed for a DC-10-30. The 747-100 model is used as a standard payload. Each aircraft is divided by the standard 747-100 ton miles which is the .172302.

$$\frac{\text{block speed} \times \text{payload} \times \text{utilization rate}}{1,000,000}$$

B747 million ton miles

$$455 \times 65 \times 4.7 / 1,000,000 = .1390025 \text{ million ton miles per day}$$

$$.1390025 / .172302 = .807$$

$$.807 \times 10 = 80.7 \text{ mobilization value points}$$

MOBILIZATION VALUE CALCULATIONS

Figure 4.

(Porter, 1996)

*This example is for a DC-10 with a block speed of 455 knots, 65,000 pounds of payload capacity and a utilization rate of 4.7 hours per day.

There are also mobilization value adjustments. Aircraft that are in Stage I earn double mobilization value. A 20% bonus is given to MD-11 and B747-400 aircraft because of their extended range. A 100% bonus is given for B767 aircraft capable of aeromedical evacuation. The aeromedical aircraft are not required until Stage II is activated. Referring to Table 3, we can see that Northwest Airlines volunteers the most aircraft to the program. Therefore it will receive the largest percentage of business under the GSA city pairs program during peacetime. The city pairs program is the single biggest incentive to the airlines. The amount of business generated by the government on an annual basis is enormous, \$1.938 billion in fiscal year 1996. The airlines all want their fair share of this money and the more aircraft committed to CRAF the more peace time business they are entitled to.

Civilian Access to Military Installations (CAMI)

CRAF carriers already have broader approval than in the past, to designate military bases as preplanned weather alternates and for unplanned technical stops. The ability to list these on flight plans sometimes allows aircraft to carry less fuel to meet FAA emergency requirements. The savings can be significant. For example, if an aircraft is flying from Atlanta to Seattle, if the weather is bad in Seattle the airline can identify McChord AFB in Tacoma as a weather alternate rather than Portland, Oregon. This is approximately 10 minutes worth of gas as opposed to 40 minutes that it takes to fly to Portland. Over a matter of months this can be a substantial savings in fuel costs to an airline.

Access to key military airfields, both within the U.S. and in other countries where U.S. forces are based, is of real interest to the airlines. The access by CRAF carriers is of primary interest to small package carriers, like Federal Express and Emery. An example may be El Toro Marine Corps Air Station in California. Los Angeles International and all of the other civil airports in the Los Angeles Basin are very busy. If a small package company can use El Toro to service southern Orange County, it will cut down on congestion at the civilian fields and is a shorter surface distance from the airplane to the customer. Pacific Rim bases are also of particular interest to the carriers. The joint use concept offers an attractive business opportunity at relatively little cost to the government.

“In October of 1994 the president signed the Federal Acquisition Streamlining Act, giving DoD authority to grant CRAF carriers commercial access to military installations” (Routh, 1995: 3). The final stages of implementation of the Civilian Access to Military Installations program is ongoing. AMC has presented the program to the airlines and received a some responses. “One site survey has been conducted and more are to be completed in the near future” (Routh, 1996).

Contingency Alert Concept

This policy came to light in 1994 in preparation for a possible second deployment to the Middle East when Iraqi troops began moving toward the Kuwaiti border again. Carriers came forward to offer services to DoD. “The concept is to quickly and fairly compensate carriers for actions they take to support DoD during times of potential crisis,

when no mission is actually flown" (Porter, 1996: 29). Some of these actions include positioning aircraft and crews, purchasing of supplies, and services performed including administrative services. These actions may be taken with no CRAF missions actually flown, yet they still cost the carriers money. Once the CRAF is activated the Contingency Alert Concept is no longer needed.

In the past a carrier would have to file a claim with the government and try to recoup the cost expended during the contingency. With the implementation of this program the contracting officer will issue a contract modification implementing "Contingency Alert." This contract modification permits carriers to start making preparations for missions with the assurance they will be promptly compensated for their expenses. Thus alleviating the long process of filing claims and waiting for the government to settle them.

Small Package Program

This program ties the government's domestic next day and two day air deliveries to CRAF participation. The first contract was awarded in May 1996 entirely to Federal Express for 1997. This \$90 million contract is for one year with options for the next four. In return for giving Federal Express the contract, the airline must commit an additional 15 percent of its fleet to the CRAF. Since cargo carriers are required to commit 15 percent this meant Federal Express had to guarantee 30 percent of its fleet to the CRAF.

Federal Express went above and beyond that and committed its entire fleet to the program for fiscal year 1997. This brings the wide body equivalent cargo aircraft up from 111 in 1996 to 156 in 1997, a 40.5% increase" (Routh, 1996). AMC is also considering an international small package arrangement with the airlines to get AMC aircraft out of the small package business altogether.

In addition to the cargo aircraft commitment from Federal Express, American Airlines has committed its entire fleet of aircraft to the CRAF for 1997. American was at 30 percent which is the minimum commitment from passenger carrying airlines. "This brings the total wide body equivalent passenger aircraft from 163 in 1996 to 191 in 1997, a 17 percent increase" (Routh, 1996). "The Aeromedical aircraft commitment increased from 19, B-767 aircraft in 1996 to 33 for 1997" (Routh, 1996).

Other Incentives for CRAF

The previous four sections explained the current incentive programs that AMC has either put in place or is developing. The following section discusses other programs which are possible to keep the CRAF program successful.

One way to insure airline participation in the program is for the government to make CRAF participation mandatory for all airlines. This move is extreme and unlikely. The government could use the resources it needs during a national emergency. The government would have to regulate the airline market at that time to help protect the

carriers who's aircraft were used. This would ensure they get their routes back after the aircraft return to regular service.

The carriers would most likely resist this action due to the fact that it is similar to the old days of regulation and there is no way to level the playing field between the carriers. For example there is no easy way to level the playing field between United Airlines with its global route structure and wide body aircraft and Southwest Airlines with its U.S. route structure and fleet of B-737s.

Another option that the Rand Corporation suggests is to provide direct payments annually for enlisting in the CRAF. "The government would pay directly for an entitlement to activate particular aircraft and associated air crews" (Gebman, 1994: 64). Such an annual payment could supplement the peacetime business offered to the CRAF carriers.

The government could use a sealed-bid process (similar to the contracting process) for commitment of particular services, such as wide body transports. The carriers would bid on the surcharge percentage that they would require and the amount of the annual payment. "Using the lowest cost bid, the government would then accept into the emergency fleet those types and quantities of aircraft that it deemed necessary and appropriate to meet its emergency airlift needs" (Gebman, 1994: 66). Airlines could then be awarded mobilization points in accordance with the capabilities and quantities of aircraft that were accepted into an emergency civil airlift program.

A drawback of providing direct payments is that it might appear as if the government was subsidizing the airline industry. “Economists are divided on this subject, some are unconcerned because the government is involved in subsidies in many other areas” (Gebman, 1994: 66). However, the matter of subsidies for the transportation sector has been the subject of significant public debate, for example when Pan Am sought government subsidies to help in its time of need it failed to obtain support. “One of the issues that arose was whether the government should subsidize a company that some believed was in need of better management” (Gebman, 1994: 66). The government is also not in the habit of directly subsidizing the transportation industry.

The carriers can also take a large portion of their compensation in the form of a surcharge during periods of activation. In this case the airlines could receive a surcharge during activation that provides compensation above and beyond the normal peacetime formula that was used during the Gulf War. According to Rand, “Providing the airlines with a fifty percent surcharge during the Gulf War would have increased the airlift expense by approximately \$800 million” (Gebman, 1994: 66).

The number of abandoned DC-10, L10-11 and B747 aircraft are beginning to fill airport ramps in the southwestern United States. As the airlines move toward smaller aircraft in their fleets, the wide-body aircraft are being retired to the desert. The government could feasibly maintain these aircraft in a readiness state to be used during a contingency.

The problem that arises is the aircrew aspect of this. Who will train and pay to maintain aircrews current on the aircraft. The government has some DC-10 qualified aircrews, very few B747 qualified aircrews and no L10-11 qualified aircrews. The government would have to pay the airlines to keep crews current on these aircraft.

A final problem facing the program in the future is that the number of wide-body aircraft owned by U.S. carriers is on the decline. The government is in the process of looking at options, perhaps a joint venture with the airlines in purchasing new 747-400 freighters. This is a new avenue that the program has never explored. There are many questions to be answered: Who will pay to maintain the aircraft, train the crews and pay for the aircraft?

All of these options are possible, some more than others and it all comes down to the cost to the government in the face of shrinking defense budgets. The following rank orders the different options from most viable to least viable.

I. The idea of a surcharge as a portion of their compensation during activation seems to be one of the most likely option for AMC to implement. The best way to implement a program of this type would be to pay the airlines a certain percentage over costs. If a Boeing 747 costs \$500,000 to fly a mission the government would pay the airline \$550,000 which includes a 10% profit of \$50,000.

II. There is talk about the possibility of a joint venture between the airlines and DoD for the purchase of wide-body aircraft. This idea becomes very complicated,

especially when the issues of who is going to pay for what percent of what. There are all kinds of costs involved with this and the airlines are not going to want to pay any more than they absolutely must. If this idea is implemented it will most likely take years to figure out all of the details and implement the program.

III. The precedent has been set as far as providing a direct subsidy to the airlines. The answer was no in the Pan Am case and there is not any evidence that the view of the government or the airlines has changed. The government could provide a huge amount of money to a carrier for being a CRAF member, as it did with Pan Am by converting its aircraft, and then the company feasibly could declare bankruptcy in times of financial hardship. The outcome is, after the government poured all of this money into a carrier it never received a return on its investment because the carrier went out of business.

IV. To keep the aircraft that are in the desert in a state of readiness will cost an enormous amount of money. Keeping these aircraft in a state of readiness could fill the mobility gap that exists during a contingency. These aircraft would be used only during contingencies, and the Air Force would not have to purchase a large fleet of core airlifters. The biggest obstacle to overcome in this program is crew training and where the crews come from during a contingency.

All of these programs will cost the government large sums of money except for maybe the surcharge program or the joint venture which has quite a bit of details that need to be solved before it can be implemented.

V. Summary

The CRAF program has a long history of being an inexpensive way for the government to have airlift available in times of crisis without paying to keep transport aircraft parked on military ramps around the nation. Most of what has been studied about the CRAF stems from the first activation that occurred in August of 1990. Since this was the first ever activation of the program much has been learned from that experience. As with all plans and programs that have never been exercised, there are always problems that are not foreseen.

The overall success during Operations Desert Shield/Storm can be attributed to pre-planning by DoD. However, the airline crews that went the extra mile to support the program and fly the sometimes hazardous missions were the cornerstone of the success.

“Based on the Mobility Requirements Study Bottoms Up Review, it was determined that 102 cargo and 92 passenger wide body equivalents, are the absolute minimum number of aircraft are required to support two nearly simultaneous major regional conflicts” (Routh, 1996). Today the CRAF has that commitment from the airlines, however contracts are negotiated on an annual basis and a major carrier could change its mind at any time. The airline industry is very much driven by the nation’s economy.

In the past few years the airlines have been dramatically cutting costs. Everything from inflight service to fuel conservation are at the top of their cost cutting lists. In light

of this the Air Force needs to treat the CRAF as a business venture between AMC and the airlines.

The incentives that AMC is in the process of implementing appear to be working the CRAF is on a rebound from the low participation of the early 1990's. AMC needs to handle the CRAF like a business venture with the airlines than it did in the past. In this respect the current incentive programs are steps in the right direction.

The City Pairs program provides the most incentive to be a member of the CRAF. The amount of money available to the carriers under this program is substantial due to the number of government personnel that travel on a daily basis. The Civilian Access to Military Installations program is a "perk" for the airlines that are CRAF members. It is a way for the government to offer something to the airlines that support the program and does not cost the government anything. The Contingency Alert Concept is a good way for the airlines to recoup costs incurred when they start leaning forward to help the government in times of crisis. The new Small Package program is another way for the airlines to gain peacetime business from the government and the government is guaranteed more aircraft committed to the CRAF.

Since deregulation the airlines have become more competitive and look at profits more than ever. The increased commitments for fiscal year 1997 show that the airlines, for the meantime, are backing the program. However, AMC must continue to pursue new incentives for the future, the airline industry changes rapidly and those airlines that are happy with the program now may not be next year. If it is an attractive business

opportunity for the airlines to fill passenger seats and cargo compartments on their aircraft they will participate. There is also evidence that the airlines are patriotic, this was seen by the number of aircraft volunteered by the airlines during the CRAF activation. When they are needed they will step up to the plate and do an outstanding job.

For the future, one issue that arises is the fact that the number of wide body aircraft owned by U.S. carriers will be on the decline. The government is in the process of looking at options, perhaps a joint venture with the airlines in purchasing new 747-400 freighters.

The joint venture proposition, seems like a good idea if DoD can get the airlines to agree to such an arrangement. There will probably be some hesitation on the part of the carriers, because these aircraft can be pulled from their regular service at any time by the government to support a contingency. The other solution to the shortage of wide-body aircraft is the use of the aircraft sitting in the desert. This solution will cost a substantial amount of money. Aircrews will need to be trained and must maintain currency and could feasibly never be used. A subsidy or surcharge does not seem to be needed as long as the airlines keep participating at current levels.

The program is currently enjoying strong support from the airlines. The reason for the strong support is mainly due to the amount of business generated under the city pairs program. The current programs should continue to provide participation from all of the major carriers. New programs will need to be designed to guarantee the required amount of lift is available for future contingencies. One of the best ways to do this may

be to have the airlines and the DoD enter into a joint venture when purchasing wide-body aircraft in the future.

The CRAF program has saved the U.S. taxpayers billions of dollars over the past 40 years. The program needs to remain healthy and the relationship between the carriers and AMC needs to be a good one. Both sides need to be open minded toward new ideas. Innovation will be the key to the successful future of the program.

Bibliography

- Chenoweth, Mary. The Civil Reserve Air Fleet: An Example of the Use of Commercial Assets to Expand Military Capabilities During Contingencies. Santa Monica CA: RAND Corporation, June 1990 (N-2838-AF).
- Chenoweth, Mary. The Civil Reserve Air Fleet and Operation Desert Shield/Desert Storm, Issues for the Future. Santa Monica CA: RAND Corporation, 1993 (MR-298-AF).
- Civil Air Office, HQ Air Mobility Command. Position paper. Scott AFB IL, 15 March 1996.
- Civil Air Office, HQ Air Mobility Command. Point paper. Scott AFB IL, 13 September 1995.
- Civil Air Office, HQ Air Mobility Command. CRAF Capability Summary. Scott AFB IL, 1 January 1996.
- Gebman, Jean R., Lois J. Batchelder and Katherine M. Poehlmann. Finding the Right Mix of Military and Civil Airlift, Issues and Implications Vol. 1. Santa Monica CA: RAND Corporation, 1994 (MR-406-AF).
- Gebman, Jean R., Lois J. Batchelder and Katherine M. Poehlmann. Finding the Right Mix of Military and Civil Airlift, Issues and Implications Vol. 2. Santa Monica CA: RAND Corporation, 1994 (MR-406-AF)
- General Accounting Office. Military Airlift, Changes Underway to Ensure Continued Success of the Civil Reserve Air Fleet. GAO/NSIAD-93-12. Washington: GAO, December 1992.
- General Accounting Office. Military Airlift, Observations on the Civil Reserve Air Fleet Program. GAO/NSIAD-96-125. Washington: GAO, March 1996.
- Grier, Peter. "The Comeback of CRAF," Air Force Magazine. 50-53 (July 1995).
- J5 U.S. Transportation Position Paper. Scott AFB IL 7 November 1994.
- Office of the Secretary of Defense. "CRAF Enhancement Study." November 1995.
- Porter, Murrell. "U.S. Civil Reserve Air Fleet." January 1996.

Priddy, Ronald N. A History of the Civil Reserve Air Fleet in Operations Desert Shield, Desert Storm, and Desert Sortie. Cambridge MA: Arthur D. Little Inc., 1993.

Routh, John W. Civil Air Office, HQ Air Mobility Command, Scott AFB IL. Personal interview. 19 March 1996.

Routh John W. Civil Air Office, HQ Air Mobility Command, Scott AFB IL. Telephone interview. 10 September 1996.

Spehar, Michael. J-5, U.S.Transportation Command, Scott AFB IL. Personal interview. 25 June 1996.

Truver, Scott C. "Can't Get There From Here," Armed Forces Journal International: 25-27 (August 1995).

Vita

Major Charles A. Post Jr. was born on 7 April 1961 in Dover, New Jersey. He graduated with a Bachelor of Science degree in Aviation Science in August 1983. He received his commission on 30 November 1984 upon graduation from Officer Training School.

He attended Undergraduate Navigator Training and received his wings upon graduation on 11 June 1986. His first assignment was at Norton AFB as a C-141 Navigator. His second assignment was at McChord AFB as a Flight Examiner Navigator, Assistant Chief of Wing Combat Tactics, Flight Commander and Wing Standardization Evaluation Navigator. In addition, while stationed at McChord he earned a Master of Business Administration degree from St. Martin's College. In September 1995 he entered the second class in the Advanced Study of Air Mobility Sponsored by the Air Mobility Warfare Center in conjunction with the Air Force Institute of Technology School of Logistics and Acquisition Management.

Permanent Address: 2 Willow Walk Drive
Apt 101
Ledgewood NJ 30712

REPORT DOCUMENTATION PAGE

*Form Approved
OMB No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)			2. REPORT DATE November 1996		3. REPORT TYPE AND DATES COVERED Graduate Research Paper		
4. TITLE AND SUBTITLE CRAF INCENTIVES			5. FUNDING NUMBERS				
6. AUTHOR(S) Charles A. Post Jr., Major, USAF							
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air Force Institute of Technology, WPAFB OH 45433-7765				8. PERFORMING ORGANIZATION REPORT NUMBER AFIT/GMO/LAL/96N-11			
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) HQ AFMC/CI WPAFB OH 45433				10. SPONSORING / MONITORING AGENCY REPORT NUMBER			
11. SUPPLEMENTARY NOTES							
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited				12b. DISTRIBUTION CODE			
13. ABSTRACT (Maximum 200 words) During Desert Storm the Civil Reserve Air Fleet (CRAF) was "called up" for the first time in its history. If full CRAF activation occurs, the airline industry would suffer substantial economic losses. The commercial airlines perform a vital service to this country's business community. If this service is reduced it may have a severe impact on the country as a whole. The Department of Defense (DoD) needs to explore different avenues to keep CRAF participants interested in the program. The airlines look at the bottom line now more than ever, since the industry is in a survival of the fittest environment. If the CRAF is going to cost the airlines money or business, they lose interest very fast. When the major airlines leave the CRAF, DoD may or may not have enough airlift to move all that is required to move in a contingency. Either the government pays the price now to have the lift available or it may not be there when needed. Many issues surfaced during the 1990 activation of the CRAF, some have been solved and the rest are in progress. DoD needs to treat the CRAF program as a business venture with the airlines. The airlines are in business to make a profit, if the program is going to cost them money they will not commit to it. Initiatives will be explored to keep the airlines as participants in the program, to keep the CRAF available when the country needs it.							
14. SUBJECT TERMS CRAF, Airlines, Desert Storm mobilization, GSA city pairs program					15. NUMBER OF PAGES 55		
					16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT Unclassified		18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified		19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified		20. LIMITATION OF ABSTRACT UL	

AFIT RESEARCH ASSESSMENT

The purpose of this questionnaire is to determine the potential for current and future applications of AFIT research. Please return completed questionnaire to: AFIT/LAC BLDG 641, 2950 P STREET, WRIGHT-PATTERSON AFB OH 45433-7765 or e-mail to dvaughan@afit.af.mil or nwiviott@afit.af.mil. Your response is important. Thank you.

1. Did this research contribute to a current research project? a. Yes b. No

2. Do you believe this research topic is significant enough that it would have been researched (or contracted) by your organization or another agency if AFIT had not researched it?
a. Yes b. No

3. Please estimate what this research would have cost in terms of manpower and dollars if it had been accomplished under contract or if it had been done in-house.

Man Years _____ \$ _____

4. Whether or not you were able to establish an equivalent value for this research (in Question 3), what is your estimate of its significance?
a. Highly Significant b. Significant c. Slightly Significant d. Of No Significance

5. Comments (Please feel free to use a separate sheet for more detailed answers and include it with this form):

Name and Grade

Organization

Position or Title

Address